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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,416	12/17/2003	Chia-Chen Liu	N1085-90173	8342

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EXAMINER

DEO, DUY VU NGUYEN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/738,416	Applicant(s) LIU, CHIA-CHEN	
	Examiner DuyVu n. Deo	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-15 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/3/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5-9, 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Tuan et al. (US 6,562,681).

Tuan describes a method for forming a floating gate comprising: forming a gate dielectric 140 over a substrate (col. 2, line 41); depositing a first conductor polysilicon 150 over the gate dielectric layer (col. 2, line 50); depositing a masking silicon nitride layer over the first polysilicon layer (col. 2, line 52, 53); forming conductive polysilicon spacers 610 on the sidewalls of the first polysilicon and silicon nitride layer wherein the spacers extend vertically above the top surface of the first polysilicon layer (col. 3, line 8-19); etching away the silicon nitride layer to complete the floating gate (col. 3, line 26).

Referring to claims 6-9, 14, 15, the method further forming a second dielectric layer 160 over the floating gate and the substrate (col. 3, line 26, 27); forming and patterning a third conductive 170 over the second dielectric layer to form a control gate over the floating gate, wherein part of the control gate overlies the substrate but not the floating gate (col. 3, line 39-45; fig. 10; col. 4, line 1-3); implanting ions into the substrate to form doped regions 910 adjacent the control and floating gate (col. 3, line 55-57; fig. 10).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan as applied to claims 1 and 9 above, and further in view of Chuang et al. (US 6,847,068).

Unlike claimed invention, Tuan is silent about the steps of forming the gate dielectric as recited in claims 2-4, 10-12. Chuang teaches a method of forming a floating gate wherein he teaches of forming the gate dielectric layer by forming first dielectric layer 202 over the substrate; removing the first dielectric layer where the first conductor layer of the floating gate is planned and then forming the gate dielectric layer by thermal oxidation (col. 3, line 29-50). It would have been obvious for one skilled in the art to form the gate dielectric in light of Chuang because Chuang further teaches other steps that are silent in Tuan in order to form a floating gate with a reasonable expectation of success.

Forming the first dielectric layer by thermal oxidation of the substrate would be obvious since the gate dielectric, which is essentially the same as that of the first dielectric layer, is formed by thermal oxidation of the substrate as taught by Chuang.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claim 3 recites the limitation "said first dielectric layer". There is insufficient antecedent basis for this limitation in the claim.

Drawings

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: page 2 describe source region 62, which is not shown in the drawing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Election/Restrictions

8. Applicant's election without traverse of claims 1-15 in the reply filed on 9/6/05 is acknowledged.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-2:30 Mon-Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner

Duy-Vu N. Deo

9/14/05

